

### **REMARKS**

By this amendment, claim 2 has been cancelled, claims 1, 3, 4 and 6 have been amended, and claims 7-14 have been added. Thus, claims 1 and 3-14 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

The specification and abstract have been carefully reviewed and revised to correct grammatical and idiomatic errors in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification and Abstract by the current amendment. The attachment is captioned "**Version with markings to show changes made.**"

Replacement formal drawings are attached herewith for Figs. 1-3. In particular, Figs. 1 and 3 are each revised to provide reference numeral 15 to show the overhanging portions 15 of the stator core 8 (as referenced on page 7 of the original specification). Also, Fig. 2 has been revised to add reference numerals 11a and 11b to show the front ends and base sections, respectively, of the teeth 11 (as referenced on page 6 of the original specification).

Applicant wishes to thank the Examiner for the kind indication, in item 3 on page 3 of the Office Action that claims 3 and 5 would be allowable if rewritten in independent form.

In items 1 and 2 on page 2 of the Office Action, claims 1, 2, 4 and 6 were rejected under 35 U.S.C. 102(b) as being anticipated by Sakai (JP 5-083911). This rejection is believed moot in view of the amendments to claim 1, and the rejection is believed clearly inapplicable to the claims as now presented, for the followings reasons.

With exemplary reference to the drawing figures, claim 1 sets forth a brushless motor 1 comprising a rotor 3 having a magnet 2 with an axial length of  $L_M$  and a stator 4 having a stator core 8 provided with a plurality of teeth 11 arranged peripherally vis-à-vis the magnet 2 with an air gap G interposed between them and the magnet 2, and having auxiliary grooves 12 formed at the front ends 11a thereof, wherein the stator core 8 and the magnet 2 are arranged such that the

axial length  $L_s$  of the stator core 8 is greater than the axial length  $L_M$  of the magnet 2, and the stator core 8 is provided with overhanging portions 15 thereof that are not vis-à-vis the magnet 1 but axially outstanding from the respective axial ends of the magnet 2, so as to prevent magnetic flux from flowing into the stator core 8 through axial end faces 8a thereof.

In contrast to the present invention as now specifically recited in claim 1, although the Sakai reference discloses a motor in which the axial length of the stator core 1 is larger than that of the magnet 8, the arrangement of the Sakai stator core 1 and magnet 8 is not such as to prevent magnetic flux from flowing into the stator core 1 through axial end faces thereof, as specifically required by claim 1.

That is, claim 1 now specifically recites that the stator core 8 and the magnet 2 are arranged such that the axial length of the stator core 8 is greater than the axial length of the magnet 2, and the stator core 8 is provided with overhanging portions 15 that are not vis-à-vis the magnet 2 but axially outstanding from the respective axial ends of the magnet 2, **so as to prevent magnetic flux from flowing into the stator core through axial end faces thereof**. However, in the Sakai reference, although each magnet 8 has a smaller axial length than the stator core 1, rotor cores 7 are provided axially between ( and at axial ends of) the magnets 8, and the rotor cores 7 together with the magnets 8 serve to provide the magnetic path. As can be seen from Fig. 5 of Sakai, the total length of the combination of rotor cores 7 and magnets 8 is equal to the length of the stator core 1 and, accordingly, the magnetic path is such that part of the magnetic flux flows into the stator core 1 through the axial end faces thereof, contrary to the requirement of present claim 1.

Therefore, the limitations now presented in claim 1 are clearly not disclosed or suggested in the Sakai reference. Therefore, it is believed clear that claim 1, as well as claims 3-7 which depend therefrom, are clearly not anticipated by the Sakai reference. Furthermore, the above-discussed difference between the presently claimed invention of claim 1 and the Sakai reference are such that there is no teaching or suggestion in the Sakai reference or in any of the prior art of record which would have motivated a person of ordinary skill in the art to modify Sakai or to

make any combination of the references of record in such a manner as to result in or otherwise render obvious the present invention of claim 1. Therefore, it is respectfully submitted that claim 1, as well as claims 3-8 which depend therefrom, are clearly allowable over the prior art of record.

Next, again with exemplary reference to the drawing figures, new independent claim 8 sets forth a brushless motor 1 comprising: a rotor 3 having a magnet 2 and a rotor core 3, each of the magnet 2 and the rotor core 3 having an axial length of  $L_M$ , a stator 4 having a stator core 8 provided with a plurality of teeth 11 arranged peripherally vis-à-vis the magnet 2 with an air gap  $G$  interposed between them and the magnet 2 and having auxiliary grooves 12 formed at the front ends 11a thereof; wherein the axial length  $L_s$  of the stator core 8 is greater than the axial length  $L_M$  of the magnet 2 and the rotor core 6; and wherein the stator core 8 is provided with overhanging portions 15 thereof that are not vis-à-vis the magnet 2 but axially outstanding from the respective axial ends of the magnet 2.

Thus, new independent 8 is similar to a combination of original claims 1 and 2, but with the added limitation that the rotor core 6, like the magnet 2, has an axial length  $L_M$ . In other words, claim 8 requires the magnet 2 and the rotor core 6 to both have the same axial length, and also requires that the axial length of the stator core 8 is greater than the axial length of the magnet core 8 and the rotor core 6.

Clearly this is not the case in the Sakai reference. Rather, in Sakai, the rotor cores 7 are disposed axially between (and at axial ends of) the magnets 8 and, as such, are not made of equal length to the magnets 8. Rather, from Fig. 5 of Sakai, it is apparent that the rotor cores 7 of Sakai are axially longer than the magnets 8.

Furthermore, new dependent claim 9 requires that the rotor core 6 is disposed radially inwardly of the magnet 2, as illustrated in Fig. 1. Again, contrary to this requirement of claim 9, the Sakai rotor cores 7 are not disposed radially inwardly of the magnets 8, but are rather disposed axially between (and at axial ends of) the magnets 8.


For these reasons, it is believed clear that claim 8, as well as dependent claim 9 and dependent claims 10-14, are not anticipated by the Sakai reference. Furthermore, the difference between the invention recited in claim 8 and the Sakai disclosure is such that there is no teaching or suggestion in Sakai or in any of the references of record that would have taught a person of ordinary skill in the art to modify Sakai or to make a combination of any of the references of record in such a manner as to result in or otherwise render obvious the present invention of claim 8. Therefore, it is respectfully submitted that claim 8, as well as claims 9-14 which depend therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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